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SOVIET SCIENTIFIC DISCOVERIES

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Collection of translations from the Soviet patent journal, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy i Tovarnyye

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Library of Congress, Federal Research Division,
Washington, D.C.

In 1957 a special Committee on Inventions and Discoveries at the USSR Council of Ministers began systematic registration of scientific discoveries made in the Soviet Union. Writing in the newspaper Sotsialisticheskaya Industriya (14 December 1971) Yu. Konyushaya, Deputy Chief of the Division for Discoveries of the Committee on Inventions and Discoveries, the USSR Council of Ministers, states that the concepts of discoveries and inventions are quite different. While a discovery, like any invention, may also find an immediate application, it basically reveals new properties, regularities, or phenomena occurring in nature.

Until recently the importance of discoveries was reportedly not strongly emphasized in the Soviet Union. They were treated as a component part of research whose findings appeared in the form of publications. Since 1957 and, particularly since the Stoekholm international conference which dealt with intellectual property in 1967, a new dimension has been added to the official treatment of discoveries in the Soviet Union. It consists in the close scrutiny of the application submitted before granting recognition for the discovery to the author. The law also provides for the protection of legal rights of the discoverer.

Statistically, only about one percent of all applications qualify for issuance of the discovery certificate. Since 1957 one hundred six discoveries were entered in the state record. These discoveries dealt with different scientific and engineering subject areas such as astrophysics, geophysics, nuclear physics, quantum electronics, solid state physics, mechanics,

automation, chemistry, biological science, and medicine. Most of them were published, although irregularly and frequently without full descriptions, in the Soviet patent journal - Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy i Tovarnyye Znaki.

The present report is an attempt to compile all Soviet discoveries published in various issues of the above journal since 1957. However, of the 106 discoveries registered by the Soviet Committee on Inventions and Discoveries, eight (Nos. 9, 28, 33, 36, 54, 61, 91 and 92) have never been published in the Soviet literature available at the Library of Congress.

This report contains brief but all essential elements describing each discovery. About one-half of all discoveries found did not have the name of the discovery but contained a short description which was then included in its entirety. On the other hand, when the name of the discovery seemed to be self-explanatory, the description of the discovery, though given in the sources used, was omitted in this report. The compilation begins with the most recent discovery made and goes back to the first discovery registered.

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1 February 1972

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1. Discovery Number: 106

2. Name: THE PHENOMENON OF VERTICAL-RAY STRUCTURE OF THE DIURNAL RADIATION OF THE EARTH'S UPPER ATMOSPHERE.

3. Description: The upper atmosphere of the Earth exhibits a vertical-ray structure in daytime in the transition region from nocturnal emission layer to the zone of colored twilight. The discovery reveals new properties of the upper earth's atmosphere such as the characteristics of layers responsible for radiation in the visible region and peculiarities of excitation and radiation of discrete emissions during daytime.

4. Author: Buznikov, A.A., K.Ya. Kondrat'yev, A.I. Lazarev, M.M. Miroshnikov, O.I. Smoktiy, G.T. Beregovoy, A.G. Nikolayev, V.I. Sevast'yanov, and Ye. V. Khrunov.

5. Place: Leningrad State University and Leningrad Hydrometeorological Institute.

6. Application - Number and Date: 8058, 9 August 1971

7. Priority Date: 19 May 1971.

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1. Discovery Number: 105

2. Name: ANTIHELIUM - 3.

3. Description: Antihelium - 3, i.e., an antinucleus with the number of antiprotons greater than one, was formed experimentally. This discovery establishes the identity of forces binding antinucleons into antinuclei and nucleons into nuclei, and shows the existence of symmetry of matter and antimatter in nature.

4. Author: Antipov, Yu. M., N.K. Vishnevskiy, Yu.P. Gorin, S.P. Denisov, S.V. Donskov, F.A. Yech, G.D. Zhil'chenkova, A.M. Zaytsev, V.M. Kut'in, V.A. Kachanov, L.G. Landsberg, V.G. Lapshin, A.A. Lebedev, A.G. Morozov, A.I. Petykhov, Yu. D. Prokoshkin, Ye. A. Razuvayev, V.I. Rykalin, V.I. Solyanik, D.A. Stoyanova, V.P. Khromov, R.S. Shuvalov.

5. Place: Institute of High Energy Physics.

6. Application - Number and Date: 7875, 14 December 1970

7. Priority Date: 28 January 1970

1. Discovery Number: 104

2. Name: EXCITONS IN SEMICONDUCTORS AND DIELECTRICS

3. Description: There is a special excited state in the crystal named exciton, i.e., a coupled system of an electron and a hole. The system can move inside the lattice and it manifests itself in the form of a hydrogen-like series of narrow lines in the light absorption spectrum of the crystal.

4. Author: Gross, Ye.F., N.A. Karryyev, and Ya.N. Frenkel'.

5. Place: The Joffe Physico-Technical Institute.

6. Application - Number and Date: 7667, 26 May 1970, and 7286, 6 June 1969

7. Priority Date: 1931 - Theory by Ya. F. Frenkel'
1951 - Experiments by Gross and Karryyev

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1. Discovery Number: 103

2. Name: PROPERTY OF SPERMATOZOONS OF MAMMALS TO PRESERVE FULL BIOLOGICAL VALUE AFTER DEEP FREEZING.

3. Description: Spermatozoons of mammals have a property to preserve full biological value and genetic information after deep freezing in liquified gases. Under these conditions spermatozoons can be preserved for years.

4. Author: Milovanov, V.K., I.I. Sokolovskaya, I.V. Smirnov

5. Place: All-Union Scientific Research Institute of Animcal Husbandry and Ukrainian Agricultural Academy

6. Application - Number and Date: 7854, 24 November 1970

7. Priority Date: June 1947

1. Discovery Number: 102

2. Name: LOW-STRESS PHENOMENON NEAR THE SURFACE EDGE OF JOINED PARTS IN A COMPOSITE BODY UNDER STRESS

3. Description: (See name)

4. Author: Chobanyan, K.S.

5. Place: Institute of Mathematics and Mechanics, Armenian Academy of Sciences

6. Application - Number and Date: 6436; 30 January 1968

7. Priority Date: 22 March 1967

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1. Discovery Number: 101

2. Name: REGULARITY IN THE DIAMOND FORMATION

3. Description: Under certain conditions of temperature and pressure (obtained theoretically) a regularity is shown to exist in the crystallization (synthesis) of diamond from carbon.

4. Author: Leypunskiy, O.I.

5. Place: Institute of Chemical Physics, USSR Academy of Sciences

6. Application - Number and Date: 7644, 11 May 1970

7. Priority Date: August 1939

1. Discovery Number: 100

2. Name: NONRADIATIVE TRANSITIONS IN MESONIC ATOMS

3. Description: Mesonic atoms exhibit a property of transferring (without radiation) the entire energy of the meson to the nucleus when this energy is close to the energy difference of nuclear levels.

4. Author: Zaretskiy, D.F., M.Ya. Balats, B.M. Pontekorvo, P.I. Lebedev, Yu.V. Obukhov, L.N. Kondrat'yev, and L.G. Landsberg

5. Place: Institute of Atomic Energy; Institute of Theoretical and Experimental Physics, Joint Institute of Nuclear Research; and Institute of Physics of High Pressures

6. Application - Number and Date: 7420, 11 October 1969

7. Priority Date: 17 June 1959

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1. Discovery Number: 99

2. Name: PHENOMENON OF THE SECONDARY VORTEX FORMATION

3. Description: Portions of half-loops of free spatial vortex filaments deform and coil into a combination of coaxial superposed spiral turns, thus forming two longitudinal flows of opposite circulation.

4. Author: Larin, A.V. and V.I. Mavritskiy

5. Place: Central Aerohydrodynamics Institute imeni N.Ye. Zhukovskiy

6. Application - Number and Date: 7298, 24 June 1969

7. Priority Date: 21 December 1964

1. Discovery Number: 98

2. Name: SEMICONDUCTOR PROPERTIES OF CHALCOGENIDE GLASSES

3. Description: High electron conductivity, photo-conductivity, thermoelectromotive force, and other semiconductor properties typical for crystal semiconductors can be achieved in chalcogenide glasses.

4. Author: Goryunova, N.A. and B.T. Kolomiyets

5. Place: Leningrad Physico Technical Institute, USSR Academy of Sciences.

6. Application - Number and Date: 7460, 26 November 1969

7. Priority Date: January 1955

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1. Discovery Number: 97

2. Name: PHENOMENON OF CONJUGATION OF REACTIONS USING DIAPHRAGM CATALYZERS

3. Description: Two (or more) chemical reactions may be carried with the use of diaphragm catalyzers. Conjugated reactions proceed simultaneously on different sides of the diaphragm without intermixing of all reagents.

4. Author: Gryaznov, V.M., L.K. Ivanova, V.S. Smirnov, and A.P. Mishchenko

5. Place: The Lumumba University of Peoples' Friendship and Institute of Petrochemical Synthesis, USSR Academy of Sciences.

6. Application - Number and Date: 7270, 13 May 1969

7. Priority Date: 13 May 1969

1. Discovery Number: 96

2. Name: THE SEVEN-VALENCE STATE OF NEPTUNIUM AND PLUTONIUM

3. Description: Neptunium and plutonium may be converted into seven-valence state under the influence of strong oxidants in alcali media.

4. Author: Gel'man, A.D., N.N. Krot, and M.P. Mefod'yeva

5. Place: Institute of Physical Chemistry, USSR Academy of Sciences

6. Application - Number and Date: 6783, 16 July 1968

7. Priority Date: 28 November 1967

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1. Discovery Number: 95

2. Name: AUTOMATIC REGULATION OF HYDROELASTICITY OF FINS IN CETACEANS

3. Description: Cetaceans possess an automatic mechanism which regulates elasticity of their fins. It consists of a complex of arterio-venous vessels and a general vessel distribution system in the tail fin. It operates reflexly according to the swimming mode.

4. Author: Pershin, S.V., A.S. Sokolov, and A.G. Tomilin

5. Place: No information available

6. Application - Number and Date: 7087, 23 December 1968

7. Priority Date: 23 December 1968

1. Discovery Number: 94

2. Name: DESINTEGRATION OF THE NEUTRAL PHI-MESON INTO A HOLE-ELECTRON PAIR

3. Description: Neutral phi-mesons disintegrate into hole-electron pairs. The disintegration shows that there are direct transitions between the neutral phi-meson and gamma-quantum.

4. Author: Baldin, A.M., I.V. Chuvilo, M.N. Khochaturyan, A.S. Belousov, Ya. Gladki, A.T. Matyushin, V.S. Pantuyev, M.A. Azimov, M.S. Khvastunov, D.N. Shtarkov, R.G. Astvatsaturov, L.I. Zhuravleva, V.I. Ivanov, and V.T. Matyushin

5. Place: Joint Institute of Nuclear Research, Dubna

6. Application - Number and Date: 7052, 10 December 1968

7. Priority Date: February 1967

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1. Discovery Number: 93

2. Name: THE PHOTOPLASTIC EFFECT

3. Description: Resistance to plastic deformation of a semiconductor depends on illumination by visible light. The resistance minimum occurs at wavelengths close to the absorption band of the semiconductor.

4. Author: Osip'yan, Yu.A. and I.B. Savchenko

5. Place: Institute of Solid State Physics, USSR Academy of Sciences

6. Application - Number and Date: OT-7474, 6 January 1970

7. Priority Date: 21 December 1967

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1. Discovery Number: 92 No information available

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1. Discovery Number: 91 No information available

1. Discovery Number: 90

2. Name: SYNTHESIS OF SPECIFIC EMBRYONIC PROTEIN BY MALIGNANT TUMORS

3. Description: (See Name)

4. Author: Abelev, G.I., S.D. Perova, N.I. Kuprina, Yu.S. Tatarinov, N.I. Perevodchikova, N.A. Krayevskiy, and I.V. Assekritova

5. Place: Institute of Microbiology and Epidemiology and Institute of Experimental and Clinical Oncology, USSR Academy of Medical Sciences; and Astrakhan' State Medical Institute

6. Application - Number and Date: 7489, 30 January 1970

7. Priority Date: 25 May 1962

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1. Discovery Number: 89

2. Name: FORMATION OF HYBRID INFECTIONS RIBONUCLEOPROTEIN COMPLEXES

3. Description: Hybrid infectious ribonucleoprotein complexes occur during the interaction of ribonucleic acids with cellular animal proteins. These complexes differ from viruses and ribonucleic acids in terms of resistance to certain viral serums, partial sensitivity to the ribonuclease, and shifts in sedimentation.

4. Author: Yershov, F.I., V.M. Zhdanov, and L.V. Uryvayev

5. Place: Institute of Virology, USSR Academy of Medical Sciences

6. Application - Number and Date: 7462; 11 December 1969

7. Priority Date: 11 December 1969

1. Discovery Number: 88

2. Name: REFLECTION OF OPTICAL PROPERTIES OF AN OBJECT IN A WAVE FIELD OF RADIATION SCATTERED BY THIS OBJECT

3. Description: A three-dimensional color image of an object is produced during the reflection of radiation from a three-dimensional element of a transparent medium. The density distribution of matter within the medium corresponds to the distribution of standing waves which are formed around the object scattering the radiation.

4. Author: Denisyuk, Yu.N.

5. Place: State Optical Institute

6. Application - Number and Date: 2060; 1 February 1962

7. Priority Date: 1 February 1962

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1. Discovery Number: 87

2. Name: GENERATION OF A HIGH-TEMPERATURE PLASMA IN A HIGH-FREQUENCY DISCHARGE COLUMN UNDER HIGH PRESSURE

3. Description: (See Name)

4. Author: Kapitsa, P.L.

5. Place: Physics Laboratory, USSR Academy of Sciences

6. Application - Number and Date: 7713, 13 July 1970

7. Priority Date: 21 April 1959

1. Discovery Number: 86

2. Name: MAGNETIC FIELDS IN THE SOLAR SUPERCORONA

3. Description: (See Name)

4. Author: Vitkevich, V.V. and B.N. Panovkin

5. Place: Physics Institute, USSR Academy of Sciences

6. Application - Number and Date: 7088; 23 December 1968

7. Priority Date: June 1957

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1. Discovery Number: 85

2. Name: ELECTRON PARAMAGNETIC RESONANCE

3. Description: Under the effect of an alternating magnetic field at the resonant frequency, quantum transitions occur between electron energy levels in paramagnetic bodies.

4. Author: Zavoyskiy, Ye.K.

5. Place: Institute of Atomic Energy

6. Application - Number and Date: 7468; 10 December 1969

7. Priority Date: 12 July 1944

1. Discovery Number: 84

2. Name: REGULARITY IN THE ENERGY SPECTRUM OF COSMIC RAYS

3. Description: There is a regularity in the energy spectrum of cosmic rays with energies up to about 10^{17}ev. The regularity consists in an increase of the exponent (γ) of the integral spectrum from 1.7 at energies of $\leq 2 \times 10^{15}$ev to 2.3 at higher energies.

4. Author: Vernov, S.N., G.B. Khristiansen, G.V. Kulikov, V.I. Solov'yeva, A.T. Abrosimov, and B.A. Khrenov

5. Place: Scientific Research Institute of Nuclear Physics, Moscow State University

6. Application - Number and Date: 7487, 19 January 1970

7. Priority Date: 22 April 1958

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1. Discovery Number: 83

2. Name: SUPERDENSE WATER FORMATION PHENOMENON

3. Description: (See Name)

4. Author: Deryagin, B.V. and N.N. Fedyakin

5. Place: Institute of Physical Chemistry, USSR Academy of Sciences

6. Application - Number and Date: 6753; 3 July 1968

7. Priority Date: 2 June 1962

1. Discovery Number: 82

2. Name: STABILIZED RELATIVISTIC ELECTRON BEAM

3. Description: Due to the electromagnetic radiation of electrons in the field of ions, a stable ring is formed of relativistic electrons whose electromagnetic field greatly exceeds that of the external source.

4. Author: Budker, G.I.

5. Place: Institute of Atomic Energy

6. Application - Number and Date: 7472; 15 January 1970

7. Priority Date: May 1952

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1. Discovery Number: 81

2. Name: RADIO EMISSION OF THE SOLAR CORONA

3. Description: (See Name)

4. Author: Papaleksi, N.D., S.E. Khaykin, and B.M. Chikhachev

5. Place: Physics Institute, USSR Academy of Sciences

6. Application - Number and Date: 7191; 20 March 1969

7. Priority Date: 28 October 1947

1. Discovery Number: 80

2. Name: ELECTROMAGNETIC BURSTS IN A CONDUCTING MEDIUM

3. Description: Electromagnetic field penetrates through a conducting medium to a depth considerably greater than the thickness of the skin layer. The penetration is caused by the transfer of the field by charge carrier groups formed by the magnetic field.

4. Author: Azbel', M.Ya., V.F. Gantmakher, and E.Ya. Kaner

5. Place: Institute of Theoretical Physics, USSR Academy of Sciences; Institute of Solid State Physics, USSR Academy of Sciences; and Institute of Radio Engineering and Electronics, Ukrainian Academy of Sciences

6. Application - Number and Date: 7163; 26 February 1969

7. Priority Date: 24 October 1962

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1. Discovery Number: 79

2. Name: PHENOMENON OF THE DIRECTIONAL ELECTROMAGNETIC ENERGY DIVISION IN DELAY LINES (SUCH AS DIELECTRIC WAVEGUIDES)

3. Description: (See Name)

4. Author: Mirovitskiy, D.I., N.N. Yevtikhiyev, V.F. Dubrovin, and V.F. Vzyatyshev

5. Place: Moscow Institute of Radio Engineering, Electronics, and Automation and Moscow Power Institute

6. Application - Number and Date: 6639; 7 May 1969

7. Priority Date: 27 April 1959

1. Discovery Number: 78

2. Name: CURRENT-CONVECTIVE INSTABILITY OF PLASMA

3. Description: The current-convective instability occurs in the electron-hole or gaseous equilibrium plasma during the application of constant longitudinal electric and magnetic fields. The phenomenon is indicated by generation of spiral waves within the plasma.

4. Author: Ivanov, Yu.L., B.B.Kadomtsev, A.V. Nedospasov, and S.M. Ryvkin

5. Place: Physico-Technical Institute and the Institute of Atomic Energy

6. Application - Number and Date: 7280; 22 April 1969

7. Priority Date: 14 December 1957

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1. Discovery Number: 77

2. Name: DOUBLE CHARGE EXCHANGE PHENOMENON IN π - MESONS

3. Description: During the interaction with atomic nuclei positive π - mesons acquire a negative charge while negative π - mesons acquire a positive charge without the formation of additional π - mesons.

4. Author: Batusov, Yu.A., S.A. Bunyatov, V.M. Sidorov, and V.A. Yarba

5. Place: Joint Nuclear Research Institute

6. Application - Number and Date: 7121; 13 January 1969

7. Priority Date: November 1963

1. Discovery Number: 76

2. Name: VOLCANIC ACTIVITY ON THE MOON

3. Description: (See Name)

4. Author: Kozyrev, N.A.

5. Place: Main Astronomical Observatory in Pulkovo

6. Application - Number and Date: 6507; 4 March 1968

7. Priority Date: 3 November 1958

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1. Discovery Number: 75

2. Name: PROPERTY OF NATURAL GASES TO EXIST IN SOLID STATE IN THE EARTH'S CRUST

3. Description: (See Name)

4. Author: Vasil'yev, V.G., Yu.F. Makogon, F.A. Trebin, A.A. Trofimuk, and N.V. Cherskiy

5. Place: Moscow Institute of Petrochemical and Gas Industry and the Yakut Branch of the Siberian Department of the USSR Academy of Sciences.

6. Application - Number and Date: 7195; 19 March 1969

7. Priority Date: 25 July 1961

1. Discovery Number: 74

2. Name: PHENOMENON OF DEPLETION OF NORADRENALIN (IN THE STOMACH AND OTHER ORGANS OF MAMMALS) RESULTING IN NEUROGENIC DYSTROPHY

3. Description: (See Name)

4. Author: Anichkov, S.V., I.S. Zavodskaya, Ye.V. Moreva, V.V. Korkhov, and O.N. Zabrodin

5. Place: Institute of Experimental Medicine, USSR Academy of Medical Sciences

6. Application - Number and Date: 7160; 3 February 1969

7. Priority Date: 13 October 1966 and 21 November 1968

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1. Discovery Number: 73

2. Name: FILAMENTARY DIAMOND CRYSTALS

3. Description: Carbon may be separated (in the form of filamentary diamond crystals) from a carbon-containing medium. This carbon property, unknown previously, was observed experimentally.

4. Author: Deryagin, B.V., V.M. Luk'yanovich, D.V. Fedoseyev, V.A. Ryabov, B.V. Spitsyn, and A.V. Lavrent'yev

5. Place: Institute of Physical Chemistry, USSR Academy of Sciences

6. Application - Number and Date: 7100; 27 December 1968

7. Priority Date: 14 April 1967

1. Discovery Number: 72

2. Name: LOSS OF NATURAL RESISTANCE TO MICROVIRAL INFECTION IN ANIMALS

3. Description: (See Name)

4. Author: Chepulis, G.K.S. and V.M. Zhdanov

5. Place: Institute of Virology, USSR Academy of Medical Sciences

6. Application - Number and Date: 6744; 2 July 1968

7. Priority Date: 10 April 1967

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1. Discovery Number: 71

2. Name: OCCURRENCE OF THE MAGNETIC FIELD IN ATOMIC NUCLEI OF NONMAGNETIC ELEMENTS

3. Description: (See Name)

4. Author: Samoylov, B.N., V.V. Sklyarevskiy, and Ye.P. Stepanov

5. Place: Institute of Atomic Energy

6. Application - Number and Date: 6696; 1 June 1968

7. Priority Date: 25 November 1958

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1. Discovery Number: 70

2. Name: ANOMALOUS REFLECTION OF THE INFRARED RADIATION BY THE SURFACE OF THE MOON

3. Description: (See Name)

4. Author: Markov, M.N. and V.L. Khokhlova

5. Place: Physics Institute and the Astronomical Council, USSR Academy of Sciences

6. Application -- Number and Date: 6591; 17 April 1968

7. Priority Date: 6 January 1964

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1. Discovery Number: 69

2. Name: PROPERTY OF THE POSTERIOR HYPOTHALAMIC NUCLEUS AFFECTING ANTIBODY PRODUCTION PROCESSES

3. Description: (See Name)

4. Author: Korneva, Ye.A. and L.M. Khay

5. Institute of Experimental Medicine, USSR Academy of Medical Sciences

6. Application - Number and Date: 3923; 29 July 1964

7. Priority Date: 21 October 1961

1. Discovery Number: 68

2. Name: REGULARITY IN THE DISTRIBUTION OF HELIUM CONCENTRATIONS IN THE EARTH'S CRUST

3. Description: (See name)

4. Author: Yeremeyev, A.M., Yu.G. Osipov, D.M. Shcherbakov, and I.N. Yanitskiy

5. Place: All-Union Scientific Research Institute of Mineral Raw Materials, USSR Ministry of Geology

6. Application - Number and Date: 7101; 30 December 1968

7. Priority Date: 30 December 1968

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1. Discovery Number 67

2. Name: EFFECT OF SELF-FOCUSING OF ELECTROMAGNETIC AND ACOUSTIC BEAMS (DURING THEIR PROPAGATION IN A MEDIUM WHOSE INDEX OF REFRACTION IS A FUNCTION OF THE BEAM ENERGY)

3. Description: (See name)

4. Author: Askar'yan, G.A.

5. Place: Physics Institute, USSR Academy of Sciences

6. Application - Number and Date: 5141; 26 April 1966

7. Priority Date: 22 December 1961

1. Discovery Number: 66

2. Name: NATURAL GEOCHEMICAL RELATIONSHIP BETWEEN ORE ELEMENTS IN MINERALIZED AREAS AND LIGANDS CARRYING THEM

3. Description: (See name)

4. Author: Barsukov, V.L. and A.G. Volosov

5. Place: Institute of Geochemistry and Analytical Chemistry, USSR Academy of Sciences

6. Application - Number and Date: 6727; 15 June 1968

7. Priority Date: August 1966

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1. Discovery Number: 65

2. Name: LIGHT-HYDRAULIC EFFECT

3. Description: A hydraulic shock is generated during the absorption of a laser beam by a liquid. This phenomenon may be used in metal forging and in obtaining powerful acoustic and ultrasonic pulses for communication purposes.

4. Author: Askar'yan, G.A., A.M. Prokhorov, and G.P. Shipulo

5. Place: Physics Institute, USSR Academy of Sciences

6. Application - Number and Date: 6787; 17 July 1968

7. Priority Date: 28 February 1963

1. Discovery Number: 64

2. Name: ABSORPTION OF WATER VAPOR FROM THE INTERCELLULAR SPACE BY LEAF CELLS IN HIGHER PLANTS

3. Description: (See name)

4. Author: Babushkin, L.N.

5. Place: Moldavian Scientific Research Institute of Irrigation Agriculture and Vegetable Growing

6. Application - Number and Date: 5714; 14 February 1967

7. Priority Date: 14 February 1967

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1. Discovery Number: 63

2. Name: DECREASE IN CONCENTRATION OF NORADRENALINE IN THE MYOCARDIUM DURING THE HYPERFUNCTION AND HYPERTROPHY OF THE HEART

3. Description: (See name)

4. Author: Parin, V.V., F.Z. Meerson, B.N. Manukhin, and M.G. Pshennikova

5. Place: Institute of Medico-Biological Problems; Institute of Normal Pathological Physiology; and Institute of Developmental Biology

6. Application - Number and Date: 5800, 24 March 1967

7. Priority Date: 5 June 1961

1. Discovery Number: 62

2. Name: ASSIMILATION OF ATMOSPHERIC NITROGEN BY LIVING ORGANISMS

3. Description: Animals and higher plants assimilate atmospheric nitrogen necessary for their vital activity.

4. Author: Volskiy, M.I.

5. Place: Scientific Research Laboratory at Gor'kiy University

6. Application - Number and Date: 793; 25 March 1960

7. Priority Date: 19 December 1951

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1. Discovery Number: 61 No information available.

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1. Discovery Number: 60

2. Name: PROPERTY OF THE INTERPLANETARY MEDIUM

3. Description: Dust particles in the outer solar corona are distributed nonuniformly at a distance of 2.5°-14° from the sun. These particles form inhomogeneities of the order of 8 angular minutes in size.

4. Author: Poloskov, S.M. and A.Ye. Mikirov

5. Place: Institute of Applied Geophysics

6. Application - Number and Date: 5522; 23 September 1966

7. Priority Date: May 1962

1. Discovery Number: 59

2. Name: ANTISIGMA MINUS HYPERON

3. Description: A charged particle, the antisigma-minus hyperon, may be formed. The particle has a mass 2340 times greater than the mass of an electron and carries a positive charge. It decays into a positive π-meson and an antineutron.

4. Author: Veksler, V.I., M.I. Solov'yev, N.M. Viryasov, Ye.N. Kladnitskaya, A.A. Kuznetsov, A.V. Nikitin (USSR); I. Vrana (Czechoslovakia); A. Mikhul (Rumania); Kim Khin In (North Korea); Nguyen Din Ty (North Vietnam); and Vakh Gan Chan, Van Tsu-Tszen, and Din Da Tsao (Communist China)

5. Place: Not Given

6. Application -- Number and Date: 5036; 6 March 1966

7. Priority Date: March 1960

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1. Discovery Number: 58

2. Name: FORMATION OF CELL DIVISION INHIBITORS IN IRRADIATED PLANTS

3. Description: Plants irradiated with gamma rays (10-25 kr) produce substances which are capable of inhibiting cell division in plants and suppressing growth of malignant cells and tumors.

4. Author: Kuzin, A.M. and L.M. Kryukova

5. Place: Institute of Biophysics, USSR Academy of Sciences

6. Application - Number and Date: 3664; 28 April 1964

7. Priority Date: June 1959

1. Discovery Number: 57

2. Name: PHENOMENON OF THE PIEZOELECTRIC STRUCTURE IN ROCKS

3. Description: Rock minerals exhibit predominant orientation of electric axes which causes piezoelectric properties of rocks.

4. Author: Volarovich, M.P. and E.I. Parkhomenko

5. Place: Institute of the Physics of the Earth

6. Application - Number and Date: 2974; 16 April 1963

7. Priority Date: 28 April 1954

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1. Discovery Number: 56

2. Name: PROPERTY OF THE EARTH'S ATMOSPHERE

3. Description: Measurements showed that an increased ionization region with a maximum of ion concentration of 10^4 ions/cm^3 exists at altitudes of 10-40km. At altitudes of 50-70km there is a region with a minimum ion concentration of 500 ions/cm^3.

4. Author: Shvidkovskiy, Ye.G., Yu.A. Bragin, and O.K. Kostko

5. Place: Central Aerological Observatory of the Main Administration of the Earth's Atmosphere

6. Application - Number and Date: 4944; 31 January 1966

7. Priority Date: 31 January 1965

1. Discovery Number: 55

2. Name: THE TEMPERATURE LAYER EFFECT

3. Description: A self-sustaining high-temperature current-conducting layer is formed during nonstationary motion of a compressible medium in a magnetic field. Since conductivity of the medium increases with an increase in temperature, a sharp increase in interaction between the medium and magnetic field takes place.

4. Author: Tikhonov, A.N., A.A. Samarskiy, P.P. Volosevich, S.P. Kurdyumov, Yu.P. Popov, A.P. Favorskiy, V.S. Sokolov, and L.A. Zaklyazminskiy

5. Place: Institute of Applied Mathematics, USSR Academy of Sciences; and Institute of Theoretical and Applied Mechanics, Siberian Department of the USSR Academy of Sciences

6. Application - Number and Date: 5764; 6 March 1967

7. Priority Date: 10 November 1965

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1. Discovery Number: 54 No information available.

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1. Discovery Number: 53

2. Name: No information available.

3. Description: Tumor causing viruses for one class of animals are pathogenic for another class of animals. This property was first discovered in the chicken sarcoma virus which causes not only benigh and malignant tumors but also the previously unknown cystohemorrhagic sickness of mammals.

4. Author: Zil'ber, L.A., G.Ya. Svet-Moldavskiy, I.N. Kryukova, and A.S. Skorikova

5. Place: No information available.

6. Application - Number and Date: 4686, 25 September 1965

7. Priority Date: 27 May 1957

1. Discovery Number: 52

2. Name: No information available.

3. Description: Atomic nuclei in a non-stable state split spontaneously. The period of splitting is smaller by many orders of magnitude compared to the half-life for the principal state of these nuclei.

4. Author: Mikheyev, V.L., V.P. Perelygin, A.A. Pleve, S.M. Polikanov, G.N. Flerov, and V.A. Fomichev

5. Place: No information available.

6. Application - Number and Date: 4815, 1 December 1965.

7. Priority Date: 24 January 1962

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1. Discovery Number: 51

2. Name: No information available.

3. Description: Molecular nitrogen can (under conditions close to normal) react with systems composed of salts (or groups of transitional metals) and carbanion donors (RZi, RMgX, A_3Al, etc.) or ion hydride donors with the formation of compounds having the metal-nitrogen bond.

4. Author: Vol'pin, M.Ye. and V.B. Shur

5. Place: No information available.

6. Application - Number and Date: 4518, 17 June 1965

7. Priority Date: 27 April 1964

1. Discovery Number: 50

2. Name: THE DAVYDOV SPLITTING

3. Description: The nondegenerated intramolecular terms split into two (or more) quasi-continuous bands of excited crystal states in molecular crystals with the number of bands being equal to the number of molecules in the elementary cell.

4. Author: Davydov, A.S.

5. Place: No information available.

6. Application - Number and Date: Number not available; 14 January 1965

7. Priority Date: 19 June 1948

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1. Discovery Number: 49

2. Name: No information available.

3. Description: Under a concentrated load a nucleus of twinning orientation originates in crystals. It either disappears after the removal of the load or is converted into a stable twin layer with a further increase in load.

4. Author: Garber, R.I.G.

5. Place: No information available.

6. Application - Number and Date: 4448; 3 May 1965

7. Priority Date: 14 October 1938

1. Discovery Number: 48

2. Name: No information available.

3. Description: Fluorine (in quantities safe for humans and animals) has a property to lower the radioactive strontium accumulation in organism. The property results in the reduction of frequency and severity of radiation injuries by this element.

4. Author: Knizhnikov, V.A.

5. Place: No information available

6. Application - Number and Date: 4262, 5 February 1965

7. Priority Date: 19 April 1960

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1. Discovery Number: 47

2. Name: No information available.

3. Description: Hydrogen atoms exhibit discrete radiolines which are caused by quantum transitions of the $n \rightarrow n-1$ type between highly excited states.

4. Author: Borodzich, E.V., Z.V. Dravskikh, A.F. Dravskikh, N.S. Kardashev, and R.L. Sorochenko.

5. Place: No information available.

6. Application - Number and Date: 3961; 17 August 1964 and 4111; 19 November 1964

7. Priority Date: 31 August 1964

1. Discovery Number: 46

2. Name: No information available.

3. Description: The phenomenon of interaction of hypersonic and magnetic (spin) waves in ferro-, ferri-, and antiferromagnetics manifests itself in the excitation of magnetic waves by hypersonic oscillations and vice versa. The manifestation is especially strong at equal frequencies of these waves.

4. Author: Arkiyezer, A.I., S.V. Peletminskiy, and V.G. Bar'yakhtar

5. Place: No information available

6. Application - Number and Date: Number not available; 8 January 1965

7. Priority Date: 19 March 1956

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1. Discovery Number: 45

2. Name: No information available.

3. Description: High-frequency conductivity of metals increases at frequencies which are multiples of the spinning frequency of electrons in a direct magnetic field. The field is parallel to the surface of the metal and is caused by the multiple synchronous acceleration of electrons in the skin layer section of the orbit.

4. Author: Azbel', M.Ya. and E.A. Kaner

5. Place: No information available

6. Application - Number and Date: 4272, 21 June 1966

7. Priority Date: 31 December 1956

1. Discovery Number: 44

2. Name: No information available

3. Description: Linear dynamic systems with the characteristic minor identically equal to zero exhibit a new property which consists in the fact that one of physical quantities (of generalized coordinates) is independent of random external disturbances which act on one of the system inputs. The influence of these disturbances is compensated by variations in other physical quantities.

4. Author: Shchipanov, G.V.

5. Place: No information available

6. Application - Number and Date: 14/10-131; 11 June 1966

7. Priority Date: 2 April 1939

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1. Discovery Number: 43

2. Name: No information available

3. Description: Lunar average radio temperature increases with an increase in the radiation wavelength.

4. Author: Troitskiy, V.S. and V.D. Krotikov

5. Place: No information available

6. Application - Number and Date: 2873; 21 March 1963

7. Priority Date: 19 November 1966

1. Discovery Number: 42

2. Name: No information available.

3. Description: Under the effect of an electromagnetic field, electromagnetic and ultrasonic oscillations in ferrites are produced. Also, under the effect of ultrasonic oscillations and an shf field ($2f$) whose level is lower than the parametric excitation threshold, electromagnetic oscillations with a frequency (f) are generated in ferrites.

4. Author: Monosov, A.Ya. and A.V. Vashkovskiy

5. Place: No information available

6. Application - Number and Date: 2900; 21 March 1963

7. Priority Date: 21 March 1963

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1. Discovery Number: 41

2. Name: No information available.

3. Description: During rubbing of copper alloys against steel, copper transfers to steel and back to alloy. The transfer, which is accompanied by a decrease in friction down to the fluid friction level, results in a considerable decrease in wear of rubbing parts.

4. Author: Garkunov, D.N. and I.V. Kragel'skiy

5. Place: No information available

6. Application - Number and Date: 2831; 2 February 1963

7. Priority Date: 12 November 1956

1. Discovery Number: 40

2. Name: No information available

3. Description: The atmosphere of the earth contains a number of successive layers about 10 km in thickness and located at altitudes close to those of 280, 420, and 500km. These layers emit infrared radiation streams in the 0.8-40 micron range with intensities of 0.001 erg/cm^3/sec.

   These intensities were found to be dependent on solar activity.

Author: Merson, Ya.M., M.R. Shamilev, and M.N. Markov

Place: No information available

Application - Number and Date: 3381; 28 October 1963

Priority Date: 20 March 1959

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1. Discovery Number: 39

2. Name: No information available

3. Description: Pure kinasin, a new protein, may be obtained from mitochondria. The protein, liberated by mitochondria, penetrates into the hyaloplasm and nuclear plasm and increases the rate of glycolysis by activating phosphoglycerate-kinase enzyme. Thus, energy production increases in the cells of individual human and animal organs.

4. Author: Neyfakh, S.A. and V.S. Repin

5. Place: No information available

6. Application - Number and Date: 3108; 28 May 1963

7. Priority Date: January 1961

1. Discovery Number: 38

2. Name: No information available

3. Description: Active polymer centers attack available macromolecules and thus form new macromolecules and new active centers. The new macromolecules are compounds formed by the addition of the initial active centers to fragments of the available macromolecules. The other fragments of macromolecules are converted into new active centers.

4. Author: Yenikolopov, N.S.

5. Place: No information available

6. Application - Number and Date: 3873; 3 July 1964

7. Priority Date: 10 February 1961

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1. Discovery Number: 37

2. Name: No information available

3. Description: Bombardment of the Pu^{242} target with accelerated Ne^{22} ions produces a new phenomenon which consists in the formation of an element with an atomic number of 104.

4. Author: Flerov, G.N., Yu. Ts. Oranesyan, Yu. V. Lobanov, V.I. Kuznetsov, V.A. Druin, V.P. Perelygin, K.A. Gavrilov, S.P. Tret'yakova, and V.M. Plotko

5. Place: No information available

6. Application - Number and Date: 4105; 18 November 1964

7. Priority Date: No information available

1. Discovery Number: 36 No information available

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1. Discovery Number: 35

2. Name: No information available

3. Description: Radioactive decay of nuclei exhibits a new variety which consists in a decay with liberation of protons.

4. Author: Karnaukhov, V.A., G.M. Ter-Akop'yan, V.G. Subbotin, and L.A. Petrov

5. Place: No information available

6. Application - Number and Date: 3386; 6 November 1963

7. Priority Date: 12 July 1962

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1. Discovery Number: 34

2. Name: No information available

3. Description: Nuclear reaction of U^{238} and Ne^{22} produces a new phenomenon which consists in the formation of an isotope of the 102-nd element with a mass number of 256 and decay half-period of about 8 sec.

4. Author: Donets, Ye.D., V.A. Shchegolev, and V.A. Yermakov

5. Place: No information available

6. Application - Number and Date: 3450; 12 December 1963

7. Priority Date: 9 April 1963

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1. Discovery Number: 33 No information available

1. Discovery Number: 32

2. Name: No information available

3. Description: There is a new region of soft electrons in space. In the plane close to that of the geomagnetic equator this region is located at a distance of 55-85 thousand km from the center of the earth. The magnitude of the electron flux in this region is of the order of 10^{-8} electrons/cm^2sec while the electron energy exceeds 200 ev.

4. Author: Gringauz, K.I., V.V. Bezrukikh, V.D. Ozerov, and R.Ye. Rybchinskiy

5. Place: No information available

6. Application - Number and Date: 2822; 16 February 1963

7. Priority Date: 15 October 1959

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1. Discovery Number: 31

2. Name: No information available

3. Description: During the flow of electric current through a thin metallic film (40 to 80 A in thickness), emission current is generated. The generation is caused by the fact that electrons, which transfer charges between metallic "islands" in the film, have a velocity directed normally to the surface of the film.

4. Author: Borzyak, P.G., O.G. Sarbey, and P.D. Fedorovich

5. Place: No information available

6. Application - Number and Date: 3171; 4 July 1963

7. Priority Date: 26 June 1963

1. Discovery Number 30

2. Name: No information available

3. Description: Plasma may be confined in a magnetic field whose force lines are not closed but are bunched in certain places. Confinement is achieved by reflection of particles (with a certain ratio between longitudinal and transverse velocity components) from force-line bunches. The confinement period is about equal to the duration of particle collision.

4. Author: Budker, G.I.

5. Place: No information available

6. Application - Number and Date: 3089; 30 May 1964

7. Priority Date: July 1953

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1. Discovery Number: 29

2. Name: No information available

3. Description: Liver contains a carbohydrate metabolizing enzyme which synthesizes oligo- and polysaccharides by means of the intermolecular transfer of the glycosyl groups.

4. Author: Petrova, A.N.

5. Place: No information available

6. Application - Number and Date: 2933; 2 April 1963

7. Priority Date: 21 June 1956

1. Discovery Number: 28 No information available

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1. Discovery Number: 27

2. Name: No information available

3. Description: A plasma shell of the earth exists at altitudes between 2,000 and 20,000 km. The shell contains charged particles whose concentration is higher than the concentration in the interplanetary gas. The upper part of the shell contains 1000 particles/cm^3 while the concentration in the lower part does not exceed 100 particles/cm^3.

4. Author: Gringauz, K.I., V.V. Bezrukikh, V.D. Ozerov, and R.Ye. Rybchinskiy

5. Place: No information available

6. Application - Number and Date: 2821; 16 February 1963

7. Priority Date: 15 October 1959

1. Discovery Number: 26

2. Name: No Information Available

3. Description: Nonthermal space radiation undergoes partial linear polarization. The radiation is caused by relativistic electrons moving in the interstellar magnetic fields.

4. Author: Razin, V. A.

5. Place: No Information Available

6. Application - Number and Date: 2935; 2 April 1963

7. Priority Date: June 1956

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1. Discovery Number: 25

2. Name: No Information Available

3. Description: A new enzyme, the O_2-oxidation-reduction enzyme glycolate, was detected in plants. The enzyme is a water-soluable protein which participates in plant respiration and photosynthesis.

4. Author: Kolesnikov, P. A.

5. Place: No Information Available

6. Application - Number and Date: 2035; 17 January 1962

7. Priority Date: 22 March 1962

1. Discovery Number: 24

2. Name: No Information Available

3. Description: Semiconductor diodes with a single p-n junction generate shf oscillations. The phenomenon was observed in the region of the positive slope of the v-a characteristic for the diode acted upon by a negative voltage with a magnitude close to the breakdown voltage magnitude.

4. Author: Tager, A. S., A. I. Mel'nikov, G. P. Kabel'kov, and A. M. Tsebiyev

5. Place: No Information Available

6. Application - Number and Date: 4941; 27 December 1959

7. Priority Date: 27 October 1959

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1. Discovery Number: 23

2. Name: OUTER RADIATION BELT OF THE EARTH

3. Description: There is a radiation belt located in that region of space which contains magnetic lines of force that cross the earth's surface between 50 and 65 degrees of geomagnetic latitude. The belt consists of electrons with energies from hundreds to thousands Kev trapped by the magnetic field.

4. Author: Vernov, S. N., A. Ye. Chudakov, A. Ye. Vakulov, Ye. V. Gorchakov, and Yu. I. Logachev

5. Place: No Information Available

6. Application - Number and Date: 2409; 28 July 1962

7. Priority Date: July 1958

1. Discovery Number: 22

2. Name: No Information Available

3. Description: The required physiological state of blood in a human body or warm-blooded animals is maintained by the reflex-humoral system.

4. Author: Kudryashov, B. A., P. D. Ulitina, G. V. Andreyenko, T. M. Kalishevskaya, G. G. Bazaz'yan, V. Ye. Pastorova, and N. P. Sytina

5. Place: No Information Available

6. Application - Number and Date: 102; 16 November 1960

7. Priority Date: February 1958

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1. Discovery Number: 21

2. Name: No Information Available

3. Description: An emf is produced in a semiconductor or metal irrespective of the existence of a temperature gradient in the crystal lattice and concentration gradient of free carriers.

4. Author: Vystavkin, A. N., Sh. M. Kogan, T. M. Lifshitz, and P. G. Mel'nikov

5. Place: No Information Available

6. Application - Number and Date: 2061; 25 January 1962

7. Priority Date: November 1961

1. Discovery Number: 20

2. Name: No Information Available

3. Description: There is a pattern in the change of ecologophysiological development of gametogenesis in fish during cogenesis and spermatogenesis.

4. Author: Kazanskiy, B. N.

5. Place: No Information Available

6. Application - Number and Date: 244; 19 September 1961

7. Priority Date: 11 July 1940

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1. Discovery Number: 19

2. Name: No Information Available

3. Description: Thermal stability of tissues is a specific cytophysiological index of species of cold-blooded multicellular animals.

4. Author: Ushakov, B. P.

5. Place: No Information Available

6. Application - Number and Date: 101; 22 November 1960

7. Priority Date: 28 January 1959

1. Discovery Number: 18

2. Name: No Information Available

3. Description: Under the condition of diffusion equilibrium of organic and inorganic substances (sugars, amino acids, urea, and minerals) coming to living cells, the dependence of the concentration of these substances in the cell on the concentration in the surrounding medium is determined by a decreased solubility of these substances in the cell protoplasm and by the ability of colloids of the protoplasm to absorb these substances.

4. Author: Troshin, A. S.

5. Place: No Information Available

6. Application - Number and Date: 30 June 1960

7. Priority Date: 15 June 1950

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1. Discovery Number: 17

2. Name: No Information Available

3. Description: The electric response at the place of application of stimuli in nerve and muscular fibers depends directly on the intensity of the stimuli.

4. Author: Nasonov, D. N.

5. Place: No Information Available

6. Application - Number and Date: 924; 30 June 1960

7. Priority Date: 20 December 1947

1. Discovery Number: 16

2. Name: No Information Available

3. Description: There is an oscillatory-type of dependence of surface resistance in a metal on a weak magnetic field.

4. Author: Khaykin, M. S.

5. Place: No Information Available

6. Application - Number and Date: 97; 30 November 1960

7. Priority Date: 30 April 1960

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1. Discovery Number: 15

2. Name: No Information Available

3. Description: In addition to intracellular and extracellular digestion in higher animals, digestion also takes place on the outer surface of intestinal cells. It is being carried out under the effect of chyme and intestinal enzymes. This type of digestion accomplishes final breakdown of proteins and carbohydrates.

4. Author: Ugolev, A. M.

5. Place: No Information Available

6. Application - Number and Date: 2056; 30 January 1962

7. Priority Date: December 1958

1. Discovery Number: 14

2. Name: No Information Available

3. Description: On the basis of radiation inactivation of animal cell nuclei, a pattern was established which shows that the morphogenetic function of nuclei is carried out periodically during the development of cells. The activity periods of nuclei during which these nuclei exert morphogenetic effects necessary in carrying out the next stage of development of the embryo was found and it is shown that changes in biochemical indices such as respiration and the activity of the cytochrome oxidase determined by the function of the nucleus.

4. Author: Neyfakh, A. A.

5. Place: No Information Available

6. Application - Number and Date: 2164; 21 March 1962

7. Priority Date: 20 December 1958

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1. Discovery Number: 13

2. Name: No Information Available

3. Description: During an elastic impact, energy tansmission coefficient depends on the ratio of masses of the impacting bodies. The dependence is valid up to a certain critical ratio which is determined by the configuration of these bodies. With a further increase in the ratio the energy transmission coefficient becomes dependent not on the ratio but on the critical value of this ratio.

4. Author: Alexandrov, Ye. V.

5. Place: No Information Available

6. Application - Number and Date: 534; 24 December 1962

7. Priority Date: 30 October 1957

1. Discovery Number: 12

2. Name: No Information Available

3. Description: Electromagnetic waves are amplified during the propagation through a medium in which particle concentration at upper energy levels (corresponding to the excited state) is greater than the concentration at the state of equilibrium.

4. Author: Fabrikant, V. A., M. M. Vudynskiy, and F. A. Butayeva

5. Place: No Information Available

6. Application - Number and Date: 279; 18 June 1951

7. Priority Date: No Information Available

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1. Discovery Number: 11

2. Name: No Information Available

3. Description: A solar supercorona exists which surrounds the solar corona and which is located at a distance of $10R_o$-$20R_o$ from the center of the sun. The supercorona consists of electron inhomogeneities which scatter, refract, and change the amplitude of meter-band radio waves passing through it.

4. Author: Vitkevich, V. V.

5. Place: No Information Available

6. Application - Number and Date: 392; 12 February 1959

7. Priority Date: 11 November 1954

1. Discovery Number: 10

2. Name: No Information Available

3. Description: There is a certain pattern in motion of charged particles acted upon by a magnetic and a variable electric field with constant or slowly varying parameters. The pattern consists in the occurrence and maintenance of synchronism between the particle rotation frequency and the frequency of the accelerating electric field.

4. Author: Veksler, V. I.

5. Place: No Information Available

6. Application - Number and Date: 590; 9 November 1959

7. Priority Date: 8 June 1944

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1. Discovery Number: 9 No Information Available

1. Discovery Number: 8

2. Name: No Information Available

3. Description: Plant heteropolysaccharide which consists of glucose and mannose in the 1:2 ratio and which exhibits certain properties of homopolysaccharide - glycogen does exist in nature.

4. Author: Stepanenko, B. N., O. N. Ponamareva, Ye. M. Afanas'yeva, and E. A. Baksova

5. Place: No Information Available

6. Application - Number and Date: 502; 13 August 1959

7. Priority Date: 25 January 1965

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1. Discovery Number: 7

2. Name: No Information Available

3. Description: Animal tissue contains an enzyme which forms glucose by splitting dextran. The enzyme was named α 1.6 - dextranglucosidase.

4. Author: Rozenfel'd, Ye. L. and I. S. Lukomskaya

5. Place: No Information Available

6. Application - Number and Date: 504; 13 August 1959

7. Priority Date: 21 June 1954

1. Discovery Number: 6

2. Name: No Information Available

3. Description: Animal muscular tissue contains an enzyme of carbohydrate metabolizing amylose isomerase. The isomerase catalyzes the intramolecular reversible process of transition of glucose residues from the α-1.4 to α-1.6 state.

4. Author: Petrova, A. N.

5. Place: No Information Available

6. Application - Number and Date: 503; 13 August 1959

7. Priority Date: 25 February 1947

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1. Discovery Number: 5

2. Name: No Information Available

3. Description: During the transition of plant cells to the dermant state protoplasm becomes isolated in these cells. The isolation manifests itself by a loss of connection between the cells, shifting of the protoplasm away from the cell walls, and by the separation of plasmodesms.

4. Author: Genkel', P. A. and Ye. Z. Oknina

5. Place: No Information Available

6. Application - Number and Date: 497; 3 August 1959

7. Priority Date: 29 November 1945

1. Discovery Number: 4

2. Name: No Information Available

3. Description: Cathechins are capable of strengthening walls of blood-carrying capillaries and restoring their damaged permeability.

4. Author: Kursanov, A. L. and M. N. Zaprometov

5. Place: No Information Available

6. Application - Number and Date: 496; 3 August 1959

7. Priority Date: 12 August 1950

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1. Discovery Number: 3

2. Name: No Information Available

3. Description: Research on high-temperature plasma showed that neutron radiation with an intensity of 10^8 neutrons/pulse occurs in a plasma formed by passing high-power pulses through deuterium. The radiation is caused by the appearance of deuterons in the plasma.

4. Author: Artsimovich, L. A., A. M. Andrianov, Ye. I. Dobrokhotov, S. Yu. Luk'yanov, I. M. Podgornyy, V. I. Sinitsyn, and N. V. Filippov

5. Place: No Information Available

6. Application - Number and Date: 386; 27 October 1958

7. Priority Date: 4 July 1952

1. Discovery Number: 2

2. Name: No Information Available

3. Description: Studies of silkworms produced new patterns in the reaction of germ cells to the effects of high temperature and ionizing radiation. These patterns make it possible to effect fertilization and maturation processes which govern sex formation in higher animals.

4. Author: Astaurov, B. L.

5. Place: No Information Available

6. Application - Number and Date: 183; 22 May 1957

7. Priority Date: 3 December 1947

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1. Discovery Number: 1

2. Name: THE KABANOV EFFECT

3. Description: Radio waves reflected by the ionosphere undergo partial scattering by the surface of the earth. In the process, a part of scattered energy returns to the transmitter where it may be measured.

4. Author: Kabanov, N. I.

5. Place: No Information Available

6. Application - Number and Date: 481; 15 March 1947

7. Priority Date: No Information Available